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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,879	04/09/2007	Augustinus Bader	50326/006001	8676

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EXAMINER	
DEBERRY, REGINA M	
ART UNIT	PAPER NUMBER
1647	

NOTIFICATION DATE	DELIVERY MODE
01/07/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentadministrator@clarkelbing.com

Office Action Summary	Application No.	Applicant(s)	
	10/583,879	BADER, AUGUSTINUS	
	Examiner	Art Unit	
	Regina M. DeBerry	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,6 and 8-36* is/are pending in the application.

4a) Of the above claim(s) *8,14-18,23-30,32,33 and 35* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,9-13,19-22,31,34 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Status of Application, Amendments and/or Claims

The amendment, filed 21 June 2006, has been entered in full. The amendment, filed 23 October 2008, has been entered in full. Claims 4 and 7 are cancelled.

Applicant's election with traverse of Group I (claims 1-3, 5, 6, 9-13, 19-22, 31, 34 and 36; drawn in part to a method for promoting structural tissue regeneration comprising administering EPO, EMP or NESP and a pharmaceutical composition comprising cells which have been pretreated with EPI, EMP or NESP *in vitro*) in the reply filed on 23 October 2008 is acknowledged. The traversal is on the ground(s) that claims 14-18 should be examined with Group I. Applicant argues that the claims in Group I and dependent claims 14-18 have the same special technical feature. Applicant cites MPEP 1850.

Applicant's arguments have been fully considered but are not found persuasive. MPEP 1850 [R-7] PCT Rule 13.2 states, "..the requirement of unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding technical features. The expression “special technical features” shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. MPEP 1850 II states, “..**lack of unity of invention may be directly evident *“a priori”,* that is, before considering the claims in relation to any prior art**, or may only become apparent *”a posteriori”,* that is, after taking the prior art into consideration". A method for promoting tissue regeneration, wound healing and/or liver

regeneration comprising administering EPO, EMP or NESP wherein at least some of the process steps are carried out entirely or partly *in vitro* and pharmaceutical compositions comprising cells pretreated with EPO, lacks a technical relationship with an implant structure and/or support material. Furthermore, there is art of record cited in the International Search Report for claims 1 and claims 14-18 (21 June 2006)(i.e. no technical feature that defines a contribution over the prior art). The requirement is still deemed proper and is therefore made **FINAL**.

Claims 8, 14-18, 23-30, 32, 33 and 35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group, there being no allowable generic or linking claim. Election was made **with** traverse in the reply filed on 23 October 2008. Claims 1-3, 5, 6, 9-13, 19-22, 31, 34 and 36 are under examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 13 depends on claims drawn to a non-elected group. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 11, 13, 19, 20, 22, 31 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Weiss et al., WO 99/21966.

Weiss et al. teach method of producing neurons or neuronal progenitor cells which can be used for transplantation. Weiss et al. teach that the method comprising inducing multipotent neural stem cells to produce neuronal progenitor cells by proliferating the multipotent neural stem cells in the presence of erythropoietin (EPO) and growth factors (**applies to claims 1 and 3**). Weiss et al. teach that the EPO may originate from the population of neural cells by subjecting the cells to hypoxic insult which induces neural cells to express EPO or the EPO may be provided exogenously (page 5, lines 19-25; page 7, lines 16-25; pages 9-10 and claims)(**applies to claims 2, 11 and 13**). Weiss et al. teach that cell cultures with an enriched neuronal-progenitor cell and/or neuron population can be used for transplantation to treat various neurological injuries, diseases or disorders. The neuronal progenitor cells or neurons or

a combination thereof can be harvested and transplanted into a patient needing neuronal augmentation (**claims 19, 20, 22, 31 and 34**). Weiss et al. teach that alternatively, a patient's endogenous multipotent neural stem cells could be induced to proliferate *in situ* to produce neuronal progenitor cells by administering to the patient a composition comprising one or more growth factors which induces the patient's neural stem cells to proliferate and EPO which instructs the proliferating neural stem cells to produce neuronal progenitor cells which eventually differentiate into neurons (page 8, line 25-page 9, line 4).

Claims 1-3, 5, 9-13, 19, 20-22, 31, 34 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Brines et al., US 2003/0104988 A1.

Brines et al. teach the use of EPO for the preparation of pharmaceutical compositions for protecting, maintaining, enhancing or restoring the function or viability of EPO-responsive mammalian cells and their associated cells, tissues and organs. Brines et al. teach that EPO-responsive cells refer to mammalian cells whose function or viability may be regenerated by exposure to EPO. Brines et al. teach that this includes liver, endothelial cells and diseases such as hepatitis and cirrhosis (abstract; paragraphs 0005, 0024, 0054, 0056, 0107, page 15 and 0138)(**applies to claims 20-22 and 36**). Brines et al. teach local and systemic administration (abstract; paragraphs 0005 and 0024)(**applies to claims 10, 11 and 13**). Brines et al. teach the use of EPO variants, EPO glycosylation variants such as EPO with additional glycosylation sites (paragraphs 0008, 0009 and 0064)(**applies to claims 1, 3 and 5**). Brines et al. teach

that such conditions may include traumatic in-situ hypoxia, metabolic dysfunction, surgically-induced in-situ hypoxia, in-situ toxin exposure, chemotherapy and radiation therapy (paragraphs 0024 and 0055)(**applies to claim 2**). Brines et al. teach that EPO pharmaceutical composition can be used for transplants. The cells, tissues, or organs may be bathed in a solution comprising EPO (paragraphs 0007, 0025 and 0056)(**applies to claims 19, 31, 34 and 36**). Brines et al. teach routes of EPO administration including topical (paragraph 0029 and 0114)(**applies to claim 12**). Brines et al. teach the use of EPO with growth factors such as NGF, CNTF, TGF beta (paragraph 0170)(**applies to claim 9**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al., WO 99/21966 as applied to claim 1 above, and further in view of Bhaskaran et al. United States Patent Application Publication US 2004/0136952 A1.

The teachings of Weiss et al. are described above. Weiss et al. do not teach attaching EPO to polyethylene glycol (PEG). Bhaskaran et al. teach the conjugation between PEG and various proteins (abstract; paragraph 0003). Bhaskaran et al. teach

that the attachment of PEG to proteins have been shown to stabilize the protein, improve the bioavailability and/or reduce the immunogenicity *in vivo* (paragraphs 0007, 0017-0019). Proteins that can be conjugated to PEG include EPO (paragraph 0021 and claims). Bhaskaran et al. teach that the coupling of the polymer near one or more glycosylation sites mimics the beneficial effects of glycosylation of the protein (paragraphs 0023, 0095, 0099).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of inducing multipotent neural stem cells to produce neuronal progenitor cells comprising administering EPO as taught by Weiss et al., by employing an EPO conjugated with PEG as taught by Bhaskaran et al. with a reasonable expectation of success. The motivation and expected success is provided by Weiss and Bhaskaran. Weiss et al. teach methods of producing neurons or neuronal progenitor cells which can be used for transplantation by employing EPO. Bhaskaran et al. teach that the attachment of PEG to proteins have been shown to stabilize the protein, improve the bioavailability and/or reduce the immunogenicity *in vivo*. It would be obvious to one of skill in the art to want to utilize an EPO that has a long half-life and low immunogenicity.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Brines et al., US 2003/0104988 A1 as applied to claim 1 above, and further in view of Bhaskaran et al. United States Patent Application Publication US 2004/0136952 A1.

The teachings of Brines et al. are described above. Brines et al. do not teach attaching EPO to polyethylene glycol (PEG). Bhaskaran et al. teach the conjugation between PEG and various proteins (abstract; paragraph 0003). Bhaskaran et al. teach that the attachment of PEG to proteins have been shown to stabilize the protein, improve the bioavailability and/or reduce the immunogenicity *in vivo* (paragraphs 0007, 0017-0019). Proteins that can be conjugated to PEG include EPO (paragraph 0021 and claims). Bhaskaran et al. teach that the coupling of the polymer near one or more glycosylation sites mimics the beneficial effects of glycosylation of the protein (paragraphs 0023, 0095, 0099).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of regenerating EPO-responsive mammalian cells and their associated cells, tissues and organs by administering EPO as taught by Brines et al., by employing an EPO conjugated with PEG as taught by Bhaskaran et al. with a reasonable expectation of success. The motivation and expected success is provided by Brines and Bhaskaran. Brines et al. teach methods of regenerating cells, tissues and organs by administering EPO. Bhaskaran et al. teach that the attachment of PEG to proteins have been shown to stabilize the protein, improve the bioavailability and/or reduce the immunogenicity *in vivo*. It would be obvious to one of skill in the art to want to utilize an EPO that has a long half-life and low immunogenicity.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina M. DeBerry whose telephone number is (571) 272-0882. The examiner can normally be reached on 9:00 a.m.-6:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manjunath N. Rao can be reached on (571) 272-0939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marianne P. Allen/
Primary Examiner, Art Unit 1647

/R. M. D./
Examiner, Art Unit 1647
1/1/09